Remarks/Arguments

- 1. **Elections/Restrictions:** Examiner raised a restriction requirement against claims 51 59, asserting that these claims are drawn "to a non-elected specie of figure 6 to right circular cone while prosecution has thus far been to the specie of figure 5." Applicant objects to Examiner's assertion that claims 51 59 are not drawn to the specie that has been the subject of prosecution thus far. The structure shown in FIG. 4 is constructed of elements shown in FIG. 5, which shows, in fact, a right circular cone. Applicant respectfully requests that Examiner review FIG. 5 again. That element has a vertex and a cone wall, the cone wall is formed by a straight line that sweeps in a circle about a vertical axis that extends through said vertex. The cone wall thus comprises straight lines that extend from a base edge of the cone and that intersect each other at the vertex. This is the definition of a right circular cone.
- 2. FIG. 6 is also a right circular cone, but a <u>truncated</u> and narrow right circular cone. A structure was claimed in the originally filed claims that was formed of these truncated cones, which were arranged such that the truncated vertex pointed inward toward the center point of the sphere. Claims directed toward this structure have been cancelled.
- Applicant submits that this restriction is in error and respectfully requests that Examiner withdraw the restriction and examine these claims.
- 4. Applicant makes an election <u>with traverse</u> and, in order to comply with the restriction requirement, withdraws claims 51 59.
- Amendments to the Claims: Claims 32, 33, and 35 were amended to clarify that the strut distances recited in claim 35 are the same strut distances defined in claim 32. Language was added to claim 51, to clarify the maximum / minimum limits. This

added language was taken from claim 32. These amendments introduce no new subject matter and Applicant requests approval and entry of the amended claims.

- 6. **35 U.S.C. § 103(a) Rejections:** Examiner has rejected claims 32 – 33, 35 – 36. 42, 43, 46, 47, and 60 as being unpatentable over Chamberlain (4,270,320) in view of Hein (3.359.694). Examiner asserts that Chamberlain discloses a curving element. each element having a base, a wall, and a vertex. The Chamberlain elements are spherical elements. Every point on the surface of a Chamberlain element is equidistant from a common fixed point of the sphere that has the radius of curvature of the element. A "vertex" is: "4. Geometry. a. The point at which the sides of an angle intersect. b. The point on a triangle opposite to and farthest away from its base. c. A point on a polyhedron common to three or more sides. d. The fixed point that is one of the three generating characteristics of a conic section." See Exhibit "A", attached, which includes excerpts from the American Heritage Dictionary of the English Language. The Chamberlain element has no point at which angles intersect, has no triangle, thus no point on a triangle farthest from the base, does not contain a polyhedron with three or more sides, and thus, has no point common to the sides, and it is not one of the three generating characteristics of a conic section (vertex, directrix, and generator). Neither the Chamberlain element nor the Chamberlain structure contains a vertex.
- 7. Examiner further asserts that Chamberlain discloses a "circular cone."

 Throughout prosecution of the present application, Examiner has repeatedly referred to the partial spherical element of Chamberlain as a "cone". Applicant objects to Examiner's stretching of the meaning of the word "cone." Claims 32, 51, and 60 are very explicit in their definitions of the cone element. Chamberlain does <u>not</u> disclose an element that is a circular cone. Chamberlain discloses a spherical structure, each

element being a partial spherical element, that is, a multi-directionally curved element, wherein each point on the surface of the element is equidistant from a common fixed point, which is the center point of a sphere. Exhibit "A" provides the definition of a cone. "1.a. A surface generated by a straight line, the *generator*, passing thorough a fixed point, the *vertex*, and moving along the intersection with a fixed curve, the *directrix*. b. The surface generated by such a generator passing through a vertex lying on the perpendicular axis of a circular directrix. Also called "right circular cone." 2.a. The figure formed by such a surface bound, or regarded as bound, but its vertex and a plane section taken anywhere above or below the vertex. ..." There is no vertex in the Chamberlain partial spherical element, there is no wall formed by a generator sweeping about a directrix. The Chamberlain element is not a cone; the Chamberlain structure is not a cone.

8. Examiner further asserts that the arrangement of the Chamberlain elements forms a "first strut distance," a "second strut distance," ... etc. The strut distances are formed by straight lines of the cone wall. The Chamberlain elements, being continuously curved elements, do not contain or disclose a single straight line thus, Chamberlain cannot disclose or teach the strut distances as claimed. Examiner also asserts that Chamberlain discloses the strut distances and directions between vertexes, as claimed in claim 35 of the present application. The plurality of elements in Chamberlain form a spherical structure. Every point on the surface of the structure is equidistant from the fixed common point of the sphere. There is no vertex on the entire structure and there is no plurality of vertexes, and, thus, there can be no strut distances that extend between vertexes.

- 9. Examiner then admits that Chamberlain does not disclose the use of conical elements. This supports Applicant's arguments, that the Chamberlain structure does not have a vertex or a plurality of vertexes. Examiner relies on Hein for a disclosure of a conical element, saying that "Hein (figure 1) discloses conical elements (I, H. and ABCGE) connected to each other to form a domical structure." and that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Chamberlain's structure to show the elements being conical elements as taught by Hein. Applicant refers to Exhibit "A" and the definition of "cone," provided above. Hein does not disclose a conical element as claimed in claims 32, 51, and 60.
- 10. Hein describes using six different types of elements, A, B, C, D-E, F-G, and H-I, to construct the geodesic structure. E is a mirror-reverse construction of D and I a mirror-reverse construction of H. All of the elements are flat triangles and each type of triangle, A, B, C, D-E, F-G, or H-I, differs from all the other types in size, shape, or angle. Hein, col. 2, lines 51 – 61. (Note: the "E-I" in Hein, col. 2, is an obvious typing error and should read "H-I".) The triangles are placed in specific arrangements and orientations to fit precisely next to each other, in order to form the polyhedrons that create the structure. No straight line of a "cone wall" of a Hein triangle extends "substantially parallel to at least one straight line of said adjacent conical element so as to form together a straight strut between said vertex of said first conical element and said vertex of said adjacent conical element ... " (Fischbeck, Claim 32). For example, looking at lines identified as "24" and "28" in FIG. 1 of Hein, we see that these two lines extend from a vertex, but they are not parallel to one another because they are at an angle to each other and intersect each other at the vertex, nor do they form a straight strut between the vertexes of adjacent conical elements. Lines 24 and 26 are also not parallel to each other (the base line 24B is wider than the top line 26T), nor do they form

a straight strut between the vertexes of adjacent conical elements. And so on. No two lines of adjacent conical elements are parallel to each other <u>and</u> form a straight strut between the vertexes of the two adjacent conical elements. None of the polyhedrons overlap with adjacent polyhedrons, so as to form a straight strut between the vertexes of two adjacent conical elements. If one polyhedron were to overlap with a first adjacent polyhedron, a mismatch and a gap would invariably occur with a second adjacent polyhedron. Furthermore, the triangles must fit next to each other precisely and do not allow for any amount of displacement to provide an adjustability of the conical elements that is infinitely variable between a minimum and a maximum limit, as claimed in claim 32. This is evidenced by the fact that different sizes and shapes of the triangles are required and they must be assembled in a precise order. See Hein, col. 2, line 65 – col. 3, line 25, which describes how the angles of the triangles are calculated, based on some starting values. The Hein triangles must be fitted onto an underlying structure, examples of which are shown in Hein FIGS. 9 – 16. The underlying structure does not allow for any displacement of the elements or any adjustability.

11. The combination of Chamberlain and Hein does not render any of the claims of the present application unpatentable. The combination of these disclosures has to teach or motivate one of ordinary skill in the art to come up with the structure of the current application, i.e., has to teach, suggest, or motivate one to construct a structure comprising the conical elements that are claimed in claims 32, 51, or 60. Chamberlain discloses an arrangement of partial spherical elements that form a hemispherical structure and Hein an arrangement of planar triangles that form a geodesic dome. Neither of these structures is a structure comprising a plurality of conical elements as claimed in the present application.

- 12. Particularly with regard to claim 60, which recites a conical element that is a single element, Applicant asserts that neither Hein or Chamberlain disclose a structure comprising conical elements, as claimed, nor a conical element that is a single element.
- 13. The combination of Chamberlain and Hein teaches away from the use of conical elements to construct a geodesic structure, because a person of skill in the art, looking at the continuously curved partial spherical elements of Chamberlain on the one hand, and at the flat triangles of Hein on the other hand, would not be motivated to replace them with a conical element as claimed. The shape of the cone element allows the elements to be placed in an overlapping arrangement that forms a straight strut between vertexes, without having to align the elements precisely relative to each other. Several distinct advantages of the dome structure claimed in the present application result from the use of the cone element: (1) the structure can be formed by arranging a plurality of identical cone elements in an overlapping confirmation with a (2) great degree of freedom of variability, and (3) the cone element itself is easily formed from a flat sheet material. None of the elements disclosed in the prior art allows one to construct a structure with the ease and simplicity of the Fischbeck structure. Chamberlain's elements do not have several of the features of the claimed cone elements, (i.e., no vertex, no straight strut formation between vertexes, no straight cone walls) and they must be carefully formed as partial spherical elements. Hein and atl other prior art relating to geodesic domes rely on the use of flat triangles that are carefully dimensioned and arranged in a strict and precise pattern on a grid structure. There is no variability, no overlapping arrangement, and, although the basic element is a flat triangle, the Hein and Fuller geodesic domes require triangles of numerous different shapes, sizes, and angles, that must be arranged very precisely within the grid structure. Furthermore, a person working with 3-dimensional compound curved

elements, such as the Chamberlain element, would not be able to and would not try to build a multi-angled structure, such as the Fischbeck dome, and a person working with the two-dimensional flat elements of Hein, in view of the known and pervasive technology of constructing geodesic domes with precisely configured flat panels and grid structure, would not think to use a three-dimensional cone to construct the multi-faceted geodesic-type dome.

14 Furthermore, the use of the cone elements, as claimed in the present application, lends results that are unexpected and unobvious and have a statistical and practical significance. The use of the cone elements results in a five-fold difference in volumetric capacity between the smallest possible and largest possible structures, comprising cone elements that are identical in size, shape, and number. The variability between structures depends on the strut distances. For example, assuming we are constructing Fischbeck structure S1 with 100 Cones X, "X" defining specific angle at the vertex and length of the cone wall, and the 100 Cones X are overlapped such that the strut length is at its minimum limit, i.e., a straight line of the cone wall of a first Cone X almost completely overlaps a straight line of the cone wall of a second Cone X. The resulting structure S1 has a diameter of 1D and a volume 1V. Using the very same 100 Cones A to construct a second Fischbeck structure S2, whereby the same straight line of the cone wall of the first Cone X overlaps minimally with the same straight line of the cone wall of the second Cone X, results in the structure S2 having a diameter 1.7D and a volume 5V. Diameter and volumetric capacity of the two structures, constructed of the very same 100 Cones A, are significantly different. None of the prior art structures has this capability. When the Chamberlain elements are overlapped to a maximum extent. the resulting structure reveals a smaller portion of the sphere that is defined by the radius of curvature of the elements; when overlapped minimally, the resulting structure

is a greater portion of the same sphere that is defined by the radius of curvature of the elements. In other words, the <u>diameter</u> of the Chamberlain structure will never change. With conventional geodesic structures constructed of triangular facets, such as those disclosed by Hein or others, it is not at all possible to vary the arrangement of the elements and, thus, not at all possible to vary the diameter or the volumetric capacity of the Hein structure. One can easily see that this variability is significant and has great practical application. The variability allows one to construct a structure that uses the allotted space to best advantage. It also allows one to use a thinner material for the cone elements, for one reason or another, but with greater overlap, to provide greater stability.

- 15. Applicant submits that the disclosures of Chamberlain and Hein, either alone or in combination, do not teach, suggest, or motivate one skilled in the art to use conical elements of the present invention to construct the geodesic structure as claimed in claims 32, 51, and 60 of the present application and requests that Examiner withdraw the rejections under 35 U.S.C. § 103(a) based on Chamberlain and Hein.
- 16. Claims 42, 43, 46, and 47 were also rejected under 35 U.S.C. § 103(a) as being unpatentable over Chamberlain in view of Hein and claims 44 and 45 as being unpatentable over Chamberlain in view of Hein and further in view of Fuller (3,203,144). The combination of these references does not disclose, teach, or motivate one skilled in the art to construct a structure with the elements claimed in claim 32. These rejected claims all depend from claim 32, which Applicant submits contains allowable subject matter, therefore, these claims also contain allowable subject matter. Applicant requests that Examiner withdraw these rejections and allow all claims currently presented.

- 17. Previous Rejections: Below is a table, listing the references relied upon in this and past office actions, to reject the claims of the present application. The purpose of this table is to illustrate to Examiner, just how many different types of elements he has cited, as either anticipating or rendering the claimed invention unpatentable, and to point out that none of them, alone or in combination, has disclosed the structure made of the conical elements claimed in this patent application. Examiner has cited references that disclosed spherical elements, polyhedral elements, polyhedral elements formed from flat triangular panels or from folded diamond-shaped elements, cone elements that point inward to the common fixed point of a sphere, and a multiconic structure. No reference nor a combination of references cited has motivated one to use a cone in the arrangement claimed in the independent claims of the present application to form the claimed structure. Some of the rejections have been redundant, in that they relied on elements that were structurally very similar. For example, Fuller, Tuitt, and Hein disclose some type of flat triangular panel arranged to form a polyhedron. At least two references disclosing circular cones pointing inward toward the common fixed point of the sphere have been cited.
- 18. The Fischbeck structure can be constructed of any number of identical cone elements greater than four and, thus, have any number of vertexes greater than four. None of the prior art teaches or discloses a structure that has this versatility, flexibility, or the simplicity of this structure. Conventional geodesic structures require precise dimensioning and arrangement of panels or struts in a specific geometric pattern that result in a predetermined number of vertexes. The Chamberlain structure has no vertexes. No combination of the prior art teaches or discloses a structure that has the versatility and simplicity of the Fischbeck structure.

Office Action	Reference	Description of Element	Comments
03/25/2003	6,098,347 (Jaeger et al.)	Flat triangular sections arranged in pyramidal frame	Successfully traversed
12/15/2003			
03/25/2003	4,270320 (Chamberlain)	Continuously curved spherical elements arranged to form a spherical structure	traversed
12/15/2003			
09/08/2004			
05/19/2005			
11/17/2005			
07/14/2006			
11/30/2006			
06/01/2007			
05/19/2005	3785066 (Tuitt)	Sheet of foldable paper, folded to form a four-sided polyhedron	successfully traversed
11/17/2005			
11/17/2005	2682235 (Fuller)	Flat triangular panels fitted into a frame	successfully traversed
02/02/2006	1009434 (Mohr)	Right circular cones pointing inward toward the common fixed point of the sphere	successfully traversed
02/02/2006	4794742 (Henderson)	Multiconic shell structure	successfully traversed
02/02/2006	3841039 (Farnsworth)	Frustoconical sections in walls of a polyhedral structure	successfully traversed
07/14/2006	5340349 (Berg- Fernstrum)	Right circular cones pointing inward toward the common fixed point of the sphere	successfully traversed
11/30/2006			
07/14/2006	3203144 (Fuller)	Laminar diamond-shaped sheets, folded to form flat triangles. Sheets have an attachment edge.	successfully traversed
11/30/2006			successfully traversed
06/01/2007			traversed
06/01/2007	3359694 (Hein)	Polyhedral elements comprising flat triangular panels. Polyhedrons form a geodesic dome structure	traversed

- 19. Applicant respectfully requests that Examiner consider the extent of the patent prosecution and acknowledge with a Notice of Allowance that none of the prior art references discloses the invention of the present application.
- 20. Conclusion: Claims 32, 33, and 35 were amended; no new claims were added, no claims cancelled. Applicant submits that the restriction requirement placed on claims 51 59 is in error and requests that this restriction be withdrawn and claims 51 59 examined. Arguments were presented to overcome all of the 35 U.S.C. § 103(a) rejections raised.
- 21. This amendment is being filed within the shortened statutory period of the Office Action, thus no time extension fees are due.
- 22. Applicant believes the claims as currently presented are in condition for allowance. Should, however, issues be raised in this response that can easily be resolved in a direct communication, Applicant kindly requests that Examiner call or email the Undersigned.

Respectfully submitted,

August 21, 2007

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THE AMERICAN HERITAGE ON ARY OF THE ENGLISH LANGUAGE

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tooking of an offense. 2. Law. A forgiving by a husband or wife

Gothe other's additivery.

con-done (face-dorf) fr.v. -donad, -doning, -dones. 1. To for-give, overlook, or disregard (an offense) without protest or cen-sure. 2. Lew. To make condonation of. -50c Synonyms at forglyes. [Latin condonare, to give up, forgive; come (intensive) + dbadre, to give away, from datume, gift (see de. in Ap-

+ donare, to give away, find donain, an electropedix's), -con-don'er n.

com-dor (kôn'dôr, -dar) n. 1. Either of two very large New
World vultures, Vultur gryphus of the Andes or Gymnogyps californianus of the mountains of California. 2. Any of several gold
fornianus of the mountains of California. 2. coins of some South American countries bearing the figure of a condor. [Spanish condor, from Quechua kuntur.]

condot. loyansn conaur, nom queenus nunut.; condot tiere (kön'dö-tyār'ā) n., pl. tien (tyār'ā). A leader of mercenary soldiers between the 14th and 16th centuries. [Italian, leader, from condotto, conduct, leadership, from Latin the control of th

puttain, teator, from condotto, connuct, teaturship, from Laim conductum, from conducture, from conducture, from conducture, from conducture, from conducture, from contribute or lead. Used with to or toward. [Middle Braight conducten, from Laim conducture, to lead together, be useful, contribute; come, together + discret, to lead dead subset for contribute; come, together + discret, to lead dead subset in

continue: "com, togother and Appendix").] —con-duc'er n.

con-du-cive (kon-dob'siv, -dy'ob'siv) adj. Conducing; promoting; leading; contributive. Used with 10. See Synonyms at favorable. —con-du'cive-ness n.

able. —con-du/ove-ness n. co-conduct (kan-dikt') v. ducted, -ducting, -ducts. — 1. To diroot the course of, manage, control. 2. To lead or guide: conduct a tour. 3. To lead an orchestra or other musical groups. 4. To serve as a medium or channel for convoying, trainmit. 5. To behave. Used reflexively. —intr. 1. To act as a conductor. 2. To lead. —See Synonyms at accompanion of the conductor. 2. To lead. —See Synonyms at accompanion and the conductor. 3. To lead or see the conductor of the conductor. 3. The way a person acts, behavior, action. 3. The the state of the s

stresses the expert regulation of persons or activities by a leader or small group in authority: direct a political campaign, Manage stresses regulation in the sense of manipulation, sometimes of a single person or thing but often of a complex organization: manage a child: manage a hotel. Control can imply direction or management but more often suggests regulation in the form of restraint: police controlling a crowd; control your temper. Handle also suggests control but implies skillful maneuvoring; handle a black of the controlling and the controlling that the controlling th also suggests control but implies skulful maneuvering; handle a delicate affair. Supervise emplassizes broad authority: supervise a school system. Oversee suggests broad authority exercised less directly, as by inspection and observation; oversee work, som-duc-tance (kon-dult'étal) n. A measure of mutarial's conductance (kon-dult'étal) n. A measure of mutarial's ability to conduct electric charge, the real part of the complex

ability to conduct electric charge, the real part of the complex representation of admittance (see), con-duc-tion (son-dible shor) n. The transmission or conveying of something through a medium or passage, especially of electric charge or heat through a conducting medium without per centible motion of the medium itself.

conductive (kan-dik-tiv) adj. Exhibiting conductivity con-duc-tivi-ty (kon-dik-tiv'-te) n. Symbol o 1. The ability or nower to conduct or transmit. 2. A measure of the ability of a material to conduct an electric charge, the reciprocal of resistiv-

con due tor (kan-dūk tər) n. Abbr. cond. 1. A person who con-

con-duc-tor (can-dikl-tes) n. Abbr. cond. 1. A person who conducts or leads. 2. The person in charge of a rational trial, but, or streetear. 3. The director of an orchestra or other musical instances of the conduct of the conduct heat, light, sound, or, especially, an destric charge. 8. A split-new conduct (cord, in destric charge. 8. A split-new conduct (cord, in de-tric, charge, 8. A split-new conduct (cord, in de-tric, charge, 8. A split-new conduct (cord, in de-tric, in de-tric

lead together, CONDUCT.]

Global de Signature de Carlo de C

strough a verwx tyring on the perpendicular axis of a criciliar directir. Also called "right circular cone." 2 a. The figure formed by such a surface bound, or regarded as bound, by its vertex and a plane section taken anywhere above or reduct the vertex. b. Anything having the shape of this flexible conical, spheroidal, or cylindrical structure borne by certain

trees, such as the pines, firs, and hemlocks, consisting of ch tors of stiff, overlapping, woody scales, between which are the naked ovules. b. Any similar fruit, such as that of the magnois or hop. 4. Physiology. A photoreceptor in the retina of the eye 5. Any of various gastropod mollusks of the family Conidae, of tropical seas, having a conteal, often vividly marked sh ment. French cone, from Latin conus, from Greek könos. Se

ment. [French cône, from Latin cônus, trom Greek Konas, so les in Appendic, for the Constitution of the Co craft from using electromagnetic signals for naviga [CON(TROL + OF) + BL(ECTROMAGNETIC) + RAD(IATION).] for navigati [CONTROL + OP] + ELECTROMAGNETIC) + RADIATION)] - cone-nose (kôn'nôz') n. Any of several assassin bus; especially, Triatoma sangulsuga, of the southern and western Units States and Mexico, having sucking mouth parts and capable inflicting a painful, toxic bite. Also called "cone-nosed businflicting a painful, toxic bite. Also called "cone-nosed busing the cone-nosed busin Con-estorga wagon (kön'is-tô'go). A heavy covered wagon with broad wheels, used by American pioneers for westwa travel. Also called "Conestoga." [First built at Conestoga." Pennsylvania.]

co-ney. Variant of cony. Co-ney Island (kō'nō). An amusement center in Brooklyn New York City, on the southwestern tip of Long Island.

New York Lity, on the southwestern the 0 Long Halled. 3 with the formers. Z. confessor. Z. confessor. Southwestern the first t

mixing, or preparing 2 A sweet preparation, such as candy preserves. 3 A sweetened medicinal compound; an electum 4. A stylish article of women's clothing. —It.v. confection 4. A stylish article of women's ciothing. —If v. confection tioning, those into a confection, confection. —In the confection confection are (kan-fek'shon-fe's) adj. Pertaining to or sembling confections or their preparation. —n. pl. confectionaries. Variant of confectionaries. fec-tion-er (kon-fek'shon-or) n. One who makes or

confections. confectioners' sugar. Finely pulverized sugar with some

statun accord.

con-fec-tion-ery (ken-fek'shen-fe'e) n. pl. -les. Also content-ary (for sense 3) 1. Candies and other confections lectively 2. The art or occupation of a confectioner confectioner's stop.

confect confectioner.

conteat conteateration confidence of the first confide con-fed-er-ate (kan-fcd'ar-it) n. 1. A member of a co

conveneer are (xon-text a-tt) n. 1. A memoer of a conteder an ally. 2. One who assists in a plot, an accomplice. 3. G. C. A supporter of the Confederate States of America. Synonyms at partner. —2d. 1. United in a confederacy. 2. Of or pertaining to the Confederate States of America. (xon-ted o-tat). Confederate States of America. (xon-ted o-tat). To form (Kon-ect's-rat) connederates, aung, estes, ...t. 10 initial ac confederacy, ...hint. To become part of a confederacy ...hint. To become part of a confederacy past participle of confederacy, to unite in a league; ... apast participle of confederacy, to unite in a league; ... apast participle. ... and the confederacy of the confederacy

Appenux-1,1 —con-tade e-a tive adj.
Confederate rose. The cotton rose (see).
Confederate rose. The cotton rose (see).
Confederate States of America. Abbr. C.S.A. The confederate Confeder

"Southern Confederacy."

Confederate violet. A plant, Viola priceana, of the eastern United States, having streaked pale-blue flowers. con-federa-re-tion (kan-federa-re-tion not confederated or a state of being confederated. 2. A ground confederates, especially of states or nations, united common nurses.—the Confederation. 1. The united. common purpose.—the Confederation. 1. The union American States under the Articles of Confederation (178 2. The federal state created in Canada in 1867 by the Amenan Nates under the Articles of Confederation (IPs 2. The federal state created in Canada in 1867 by the B North America Act, compfising New Brunswick, North Ontario, and Quebec, and now including the ten provinces. —confeder at disorders in method in the confer (knorth of the America and Canada and Confer (knorth of the Canada and Canada



nnogyps californian



obt circula





Toda to Calvery. 2. The handkerchief itself. 3. Any similar representation of Jesu's face on a textile fabric.

In the Park (**voo'n*(**ko) in In Dullifghting, a macroor in which the matador sands immobile and passe the que dowly before the charging bull. Speaking, tower name. [Medieval Ve-ron-ica (**e-foi*(**a)). **Prescoredo, Santi Veronica, whose the park of th

vents, true (see werde in Appendix-) + teamens, of an anage, from from image, from learn (ver-22d/no). Italian vår-fä-tså'nö), Giovanni da. Also Ver-razzano (ver-22d/no). Italian vår-fä-tså'nö), Giovanni da. Also Ver-razzano (talas) - 1528? Florentine explorer of Allantic Coast of America.

Verroc-chio (va-rô'kē-ô'; Italian vār-rôk'kyô), Andrea del Also Ve-roc-chio (va-rô'kē-ô'; Italian vā-rôk'kyô), 1435-1488.

Also Ve-roc-chio (ve-76%-5°. Isalian vs.-168'.89). 1433–1488.

Florentine sculptor and painter.

Florentine sculptor and painter.

Jenne (-80). 1. Medicine. A wart.

2. Biology. A wartitude, and the school of a toad or on some leaves.

Jean perrian. See wer-in Appendix. 19

ver-ru-cose (ve-760'-65', ver-86'-86) and. Mos varru-cose (-kss).

Covered with warts or wartlike projections. [Latin verru-datas.] from verruca, VERRUCA.

from service, VERRUCAJ (1987) of France, about 14 miles southwest of Paris, the size of the palace of Louis XIV and of Sunthwest of Paris, the size of the palace of Louis XIV and of the palace of Louis XIV and of the Company of the quently. See versatile.]
ver-sa-tila (vur'sa-tal; chiefly British vur'sa-til') adj. 1. Capable

we me with (our seaso), chefty British ver's s-Ul') and 1. Capable or furning computation from one task subject, or occupation on another, having a generalized aprilude. It having a generalized aprilude. It have received the control of the contro

sa-tile-by adv. —ver'sa-til'-ty, var'sa-tile-ness n.
verse' (vars) n. Abbr. v. ver. 1. a. A line of words arranged in accordance with the principles of prosody; one line of poetry.

b. A subdivision of any metrical composition, as a stanza of a b. A subdivision of any metrical composition, as a stanza of a hymn or of a long poem. 2. Metrical or rhymed composition: poetry. 3. Light metrical composition seen as distinct from serious poetry. 4. A specific type of metrical composition, such as elegiac verse, blank verse, or free verse. 5. One of the num-bered subdivisions of a chapter in the Bible. —v. versad, vers-

in the passive: He is well versed in history. [From seried, acquainted with, from Laint versibus, past participle of versiri, to turn, occupy oncesif with. See versettle.] versed cosine. Abbr. covers A trigonometric function of an angle equal to one minus the sine of that angle. Also called "coversine."

vecoretine. Abbr. vers A trigonometric function of an single equal to one minus the cosine of that angle. Also called "version." (New Latin sinus werset, "inverse order sines," to the Latin version, "fished," in A. A short verse. 2. A short sentance specken or chanded by a priest and followed by a representation of the congregation. (Middle language of the congregation). (Middle language of version, version). tne congregation. Initiative English, from Uto Frenco versicule, from Latin verticules diministrive of versity, VERSE.] (versicolor o'tal'si-fell'si) adj. Also var-si-colored (-kül'ord), 1. Having a variety of colors', variegated. 2. Changing in color; indexecti. [Latin: versus, turned, changed (see verse) +

ver-si-fi-er (vúr'sa-fi'er) n. One who versifies. See Synonyms at

poet.

ver-si-fy (var'so-fl') v. -find. -fving. -fina. - tr. 1. To change
from prose into metrical form. 2. To treat or tell in verse, write
a poem about: "Narrative poets liked to versily Bible stories"
(George Sherburg, Intr. To write verses. [Middle English
wersifen, from Old Fench versifer, from Latin versificars:
versus, versil + vv. | -vversificar from Latin versificars: versine (vůr'sin') n. Trigonometry. A versed sine (see). [Con-

reaction of "masked steen".

A description, and masked steen of the description of a second related from one of the content of the point of the content of t medium or style. Lamb. e version of Shakespeare. 5. Medicine.
a. Manipulation of a febru in the uterus to bring is into a favorable position for deliver.
b. A deflection of an organ, such as the uterus, from its normal position. [Old Ferenh, from Medical Latin versio, conversion, translation, from Latin versee, to turn, change. See were 'in Appendix.*] —ver sloval adj. versi librae (Ver It'or'). Free verse.

verso (varso) n., pl. sos. Abbr. v., vo. 1. Printing. The left-band page of a book or the reverse side of a leaf as opposed to the rette (see). 2. The back of a coin or modal. Compare os-the rette (see). Like a rette (felio). "(the page) being turned," the page varso. [Like nerro [felio]. "(the page) being turned," the page one sees when the leaf is turned over, ablative of versus, but

see versus.
verst (varst n. A Russian measure of linear distance, equivalent to about two-thirds of a mile. [French werste, from Russian versta, "line." See wer- in Appendix.*]

versta. "line." Sec wer-? in Appendix."]
ver-sus (vid'359) prep. Abbr. v., va. 1. Against. Used in law and
ver-sus (vid'359) prep. Abbr. v., va. 1. Against. Used in law and
in sports: the plantiff versus the defendant; the Mets wrate the
Giants at Shea Stadfum. 2. As an alternative to, in contrest
with death versus dishonor. (Medieval Latin, from Latin,
turned toward, from the past participle of vertere, to turn. See wer-3 in Appendix.*]

wer's in Appendix."]
vert (virt) n. 1.a. in English forest law, any green vegetation
that can serve a sover for deer. b. The right to cut such vegetation. 2. The color green, specially in heraldry. [Middle English verte, from Old French vert, green. See verdent.]

vert. verticat. verteable (vûr'te-bre) n., pl. -brae (-brē) or -bras. Any of the verte-bra (vûr'te-bre) n., pl. -brae (-brē) or -bras. Any of the bones or cartilaginous segments forming the spinal column, bones or cartilaginous segments forming the spinal column, [Latin, joint, vertebra, "something to turn on," from vertere, to

Latin, Join, versens, "sometime to turn on," from verser, to turn. See war-" in Appendix."]

vertebra! (ver"-bra!) adj. 1. Relating to or of the nature of a vertebra. 2. Itaving or or sissing of vertebrae.

vertebra. 2. Itaving or one of the nature of a vertebra. Anatomy. The spinal canal (see).

vertebral canal. Anatomy. The spinal canal isset, vertebral column. Anatomy. The spinal column (see), vertebrate (vur'te-brat', -bril) adj. 1. Having a backbone or spinal column. 2. Of or characteristic of a vertebrate or verte-spinal column.

wertersene two sections of the supplying verbels of verter period column's, one ember of the supplying verbelsta, a branch period of the supplying verbelsta, a period of the phytim Chordata that include the fifthes, amphibiant, repitic, bride, and mammatin supplies and characterized by a segmenton werelene, verteined, column (order), and the supplies of the suppli generating characteristics of a conic section. [Latin, whirl, crown of the head, highest point, from vertere, to turn. See

crown of the acao, nignest point, from vertere, to turn. See wer-2 in Appendix. 1) ver-ti-cal (vur'ti-kal) adj. Abbr. vert. 1. At right angles to the wert-ical (vurtical) eth. Abb. ver. 1. At right angles to the horizon catenting perspendicularly from a plane; upright. Competition of the properties of the properties of the state of the vertex of the head. 4. Economics. to the vertex of the head. 4. Economics levels in the manuscular of the vertex of the head. 4. Economics levels in the manuscular of the properties of the vertex of the head. 4. Economics levels in the manuscular of the properties of the properties of the vertex of the from Late Latin verticalis, from Latin vertex, VERTEX.]

from Late Latin verticalite, from Latin vertex, VHREX, —were tiscall try, wer tiscal try, were triefly approximately proposed training to the proposed training try to the proximately so, to the portion or to the plant of a supporting surface. The proposed try to the proximately so, to the proposed try to the plant of a supporting surface. uated crosswise. In such a general sense they do not alv imply a strictly right angle but an approximation instead. Per-pendicular and plumb are generally used with precision and thus specify an angle of 90 degrees.

vertical circle. Any great circle on the celestial sphere, passing through the zenith and the nadir, and thus perpendicular to the

horizon.

vertical file. Ephomeras, such as pamphlets, sheets of paper, and mounted photographs, that have been collected and irranged for ready reference, as in a library.

vertical union. A labor union in which workers are organized according to the industry for which they work instead of by the product of the control their particular skill or craft

ver ti-ces. Alternate plural of vertex ver-troes. Alternate plural of vertex. ver-troil (vur'to-sa) n. Biology. A circular arrangement, as of flowers or leaves, about a point on an axis; a whotl. [Latin flowers or leaves, about a point on an axis; a whotl. [Latin verticillus, the whirl of a spindle, diminutive of vertex, whirl,

VERTEX.]
ver-tiolilas-ter (vir-to-to-las'tar) n. Botony. An inflorescence
resembling a whorl but actually arising in the axis of opposite
leaves. [Verticut + ASTER.] —ver-ticliles' tree's (-tat') and
ver-ti-clilate (vir-to-sif'R. 4t') and. Also ver-ti-clilated
(-tal'2(tdd). Arranged in or forming a whorl or whorls. —ver-

cairatid). Arranged in or forming a word or within the first state, and we were the last from n. Revolving, whiching; rotary, ver, tig-i-nous (var-tij-o-nas) adj. 1. Revolving, whiching; rotary, ver, tig-i-o-nas) adj. 2. Affected by vertige; div.y. 3. Tending to produce vertigor, vertigors, speed. 4. Liable to quick ange; instable, inconvertigithnuss speed. 4. Liable to quick marge, that the state of the production vertigithnuss.

TIGO.] -var-tig'i-nous-ly adv. -ver-tig'i-nous-ness # ver-tigo (vur'ti-go') n. pl. goes or vertigines (var-tij'e-nët).

1. The sensation of dizziness and the feeling that oneself of 1. The sensation of discinest and the feelings that oneself of oncie environment in control of the control of t

th bat/by which/f pit/i ple/ir pier/i judge/k kick/l lid.

Latin verbêna, often in plural verbênae, se verve (vurv) n. 1. Energy and enthusias leas and especially in artistic endeavor 2. Vitality, liveliness; vigor. 3. French, from Old French, fancy, French, from Old French, fancy, fan Latin verba, plural of verbum, word. Sei verwet (vûr'vit) n. A small, long-tailed copithecus pygerythus, having a yellow coat. [French, short for vert grivet: ver, GRIVET.]

Ver-woerd (for-voort'), Hendrik Frens: Minister of South Africa (1958-66); ass ver-y (věr'č) adv. Abbr. v., V. 1. In a h exceedingly: very happy. 2. Truly. Uses superlatives: the very hest way to proceed same one. -adj. verier, -last. 1. Co the very end of his career. 2. Identical; characteristics were out of tune with the p day" (John F. Kennedy). 3. Used as an day (John F. Rennedy). 3. Used as an the importance of the thing describe. crumbled. 4. Particular, precise; the 5. More: The very mention of the name we al: caught in the very act. 7. Archaic. al: caught in the very ucs. "................................"(St. rightful: the very vengeance of the gods. ray. from Old French verl rlai, true, re veraius (unattested), from Latin verus, 1 pendix.*]

Usage: Very (adverb) is sometimes en rectly a past participle used predicative tions: He was very tired (or very discoura generally acceptable when the particip nature of an adjective, as in the foregoin if the participle is defined separately a functions readily as an adjective in other ally be preceded by very. When the par-not meet such tests and consequently renot meet such tests and consequently for form, it is generally preferable to replace much, greatly, or a like term that fits the an example in writing, the following is a of the Usage Panel: He seemed very v examples, however, are termed unaccep percentages indicated: She was very dish 87 per cent). Call us if you are very delay were very inconvedienced by it (by 80 phrasings include much (or greatly) dis seriously delayed; much (or very much) very high frequency. Abbr. VHF, vhf ouencies falling between 30 and 300 r quencies lalling between 30 and 300 is very low frequency. Abbr. VLF. viff A be falling between 3 and 30 kilocycles per Ver.y pistol (ver'e). A pistol used fo flares. [Invented by Edward W. Very naval officer.]
Ve-sa-il-us (vi-sā'lē-os), Andreas. 1514

mist and surgeon; regarded as father o ve-si-ca (va-si'ko, -se'ka) n. pl. -cee (-se) the urinary bladder or the gallbladder. blister. See udero- in Appendix.*] —ve ves-i-cant (ves-f-kent) n. A blistering ag agent, as mustard gas, used in chemical

-i-cate (věs'I-kāt') v. -cated, -cating, intr. To be or become blistered. [] Latin vēsica, bladder, blister, VESICA.]
ves-i-ce-tory (vēs'i-kə-tör'ē, -tōr'ē) ac

vesicatories. A vesicant. ves-i-cle (ves'i-kal) n. 1. A small blac Anatomy. A small bladder or sac, es fluid, 3. Pathology. A scrum-filled blist-the skin. 4. Geology. A small air pocl-volcanic rock during solidification. Latin vésicula, diminutive of vésica, ve: ve-sic-u-lar (ve-sik-ye-ler) adj. 1. Of or 2. Composed of or containing vesicles.

vesicle. —ve-sic'u-lar-ly adv. ve-sic-u-late (va-sik'ya-lar') v. -lated. -i make vesicular. —intr. To become ve ya-lit. -lat). Full of or bearing vesicle:

Vespasianus, A.D. 9-79. Emperor of R Vespasianus, A.D. 9-79. Emperor of R Vespasianus, A.D. 9-79. Emperor of R Vesper (ves/por) n. 1, A bell used to s pers. Also called "vesper bell." 2. Ai Pertaining to, appearing in, or approp vesper serenade. [From Vesper.]
Ves-per (ves'par) n. Formerly, the even
English, from Latin, evening, the eveni Appendix *

es-per-al (vés per-ol) n. 1. A book co hymns to be used at vespers. 2. A coveraltar cloth between services. Ves-pers (vés'parz) pl.n. Also Ves-pers seven canonical hours (see). b. The time

prayer, in the late afternoon or evening. held in the late afternoon or evenin Evening Prayer (see). 4. Roman Catholi-on Sundays or holy days which includ

t tight/th thin, path/th this, bathe/ū cu